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ABSTRACT

This study describes and explores student perceptions regarding the use of WebCT in building and supporting online learning communities (a practical application). Participants were all students enrolled in "AGED 440: Principles of Technological Change," an undergraduate level course at Texas A&M University. Objectives were to describe and explore: (1) how WebCT has or has not contributed to success; whether students used online access to course materials; whether students accessed and tracked their grades and progress online; whether students created an online learning environment between and among themselves and other students in the course; and students' overall perceptions of the use of WebCT. Findings from this study indicate that WebCT contributes to student success. This success, however, is hampered when students do not have easy access to reliable computers with high-speed access to the Internet. Although course materials were available online, students tended to rely on traditional print material over WebCT delivered course materials. WebCT's function for accessing tracking grades and progress online was used more by students than any other function. Students did not or were not able to take advantage of WebCT's function to enhance their learning by creating student centered online learning environments. Students' overall perceptions of WebCT were positive. However, teachers need to recognize and make alternative options for students not willing or unable to use WebCT. (AEF)

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Building and Supporting Online Learning Environments Through Web Course Tools: It Is Whippy, But Does It Work?

ED 463 751

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Background

The authors contend that Web Course Tools, like all educational technologies, can do one of three things. It can contribute to learning the stated objectives of the course, it can be neutral, or it can distract from learning. That technology can contribute is widely supported and easily understood. In many cases technologically supported instruction facilitates more rapid or deeper understanding of the course objectives. Technology can also distract from learning. I know of no way to determine those technologies that contribute from those that distract a priori. The educational effect of technology must be empirically measured, never assumed.

The authors were interested in the effectiveness of this particular delivery strategy. Delivery strategies are perhaps best described as the application of two disparate fields of study, namely teaching methods and technologically mediated communication systems. They are, simply put, a systematic attempt to optimize the delivery of an instructional message to a particular audience. Delivery strategies are teaching methods, placed in context. They are communications technologies, applied to learning and teaching. We discover delivery strategies by optimizing teaching methods in the context of technological delivery systems. For the longest time, teaching methods assumed the collocation of the learner and instructor-both in geographical and temporal space. Whenever either of these assumptions is violated, the delivery strategy can be considered distance education. Distance education can be thought of as one subset of all possible delivery strategies. Examples of more modern delivery strategies would include the "instructor-led lecture" method delivered live via steaming media on the World Wide Web (WWW), or the "student presentation" method delivered via an interactive videoconferencing system, or the "class discussion" method delivered via asynchronous threaded discussion boards. In every case, the teaching method is mediated through--affected by--the technology used. Decisions about the appropriateness of the teaching methods and the technologies employed are a balance among the desired educational outcomes, the learners, the learning environment, and the kinds of curriculum materials that are available or can be developed.

There is a continued need to examine delivery strategies and compare them against more traditional strategies, searching for optimal methods to deliver instruction programs. Many faculty will resist the adoption of technologically mediated delivery strategies, including distance education strategies, until they are perceived as compatible with existing delivery strategies (Rogers, 1995). WWW supported instruction is commonplace in agriculture and life science courses. Donaldson and Thomson (1999) found that online learning environments, supported by web course tools, between and among students supports learning centered approaches to instruction. They caution, however, that web course tools may not be useful when they merely act as a conduit through which instruction and information is delivered.

One such technology that holds promise for improving instruction effectiveness and efficiency is WebCT. WebCT is a tool that facilitates the creation of World Wide Web instructional environments at a distance (Dabbagh & Schmitt, 1998).

Method

The purpose of this study was to describe and explore student perceptions regarding the use of WebCT (a whippy technology) in building and supporting online learning communities (a practical application).

Specific objectives of the study were to:

Describe and explore how WebCT has or has not contributed to success in *AGED 440: Principles of Technological Change* .

Describe and explore whether students in *AGED 440: Principles of Technological Change* used online access to course materials.

Describe and explore whether students in *AGED 440: Principles of Technological Change* accessed and tracked their grades and progress online.

Describe and explore whether students in *AGED 440: Principles of Technological Change* created an online learning environment between and among themselves and other students in the course.

Describe and explore students' overall perceptions of the use of WebCT in *AGED 440: Principles of Technological Change* .

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Methods and Data Sources

The population of this study consisted of all students (N=111) enrolled in *AGED 440: Principles of Technological Change* at Texas A&M University. A census of the population was conducted and results of this study are not generalizable beyond the population. This course is an upper undergraduate level course that focuses on processes by which professional change agents influence the introduction, adoption, and diffusion of technological changes. The research design for this study was a descriptive and exploratory survey methods were employed (Fraenkel & Wallen, 1999).

From a review of the literature, the researchers developed an instrument to collect data. The survey instrument consisted of five open-ended research question: 1) Has WebCT contributed to your success in this course? Please describe; 2) did you purchase a course packet? If so, why since all the class materials are available online? Please describe everything that influenced your decision; 3) did you access and track your grades and progress in the course online? If yes, what did you think of this process? If no, why not? 4) Did you use WebCT to create an online learning environment between and among yourself and other students through email, threaded discussion, online testing, study guides, etc. to increase your success in this course. Why or why not? 5) Please provide any additional comments regarding the use of WebCT in this course? Responses to the open-ended questions were categorized and coded by trained scorers.

Questionnaire reliability for the instrument was estimated by calculating a scorer agreement correlation coefficient. Reliability for the overall instrument was .94. Content and face validity were established by a panel of experts consisting of faculty members and graduate students at Texas A&M University. The survey was delivered to the population using WebCT online testing tools. Participants were given two weeks to respond to the survey. Once the survey was accessed through the password protected online testing instrument, participants had one opportunity, with unlimited time, to respond to each question. Responses to the questions were then submitted online to the researchers.

Eighty-nine participants (80%) responded to the questionnaire. Nonresponse error was controlled by comparing respondents with nonrespondents on known characteristics (Miller & Smith, 1983): gender, progress in class, and enrollment status.

Results

Results are presented below organized by objective.

Objective one Seventy-two percent of participants indicated that the use of WebCT in *AGED 440: Principles of Technological Change* has contributed to their success in the course (see Table 1). One participant noted "WebCT has allowed me to look up homework and view other class material on the we. I like WebCT because you can send messages to teachers and they can send any important notes to anyone. Also, WebCT allows me to pull notes and reviews for quizzes or exams." Twenty-one percent of the participants did not feel WebCT contributed to their success in the course. One participant noted WebCT did not contribute to their success in the course "because it was hard to get onto and some people have a hard time accessing computers. . . plus the regular web site was working fine." Seven percent of respondents had neutral perceptions of WebCT. One student stated, "The only thing this has done is make sure I get my grades faster. I think if we had the other things such as quizzes and things like that, it would be more useful."

Figure 1 shows students WebCT home page for *AGED 440: Principles of Technological Change* . Once students login to their WebCT account they can access: course schedules and materials; study tools; online quizzes; mail; and grades.

Table 1
Course Success and WebCT

	Student Response							
	Positive		Neutral		Negative		Total	
Question	f	%	f	%	f	%	f	%
Has WebCT contributed to your success in this course?	67	72	6	7	19	21	89	100

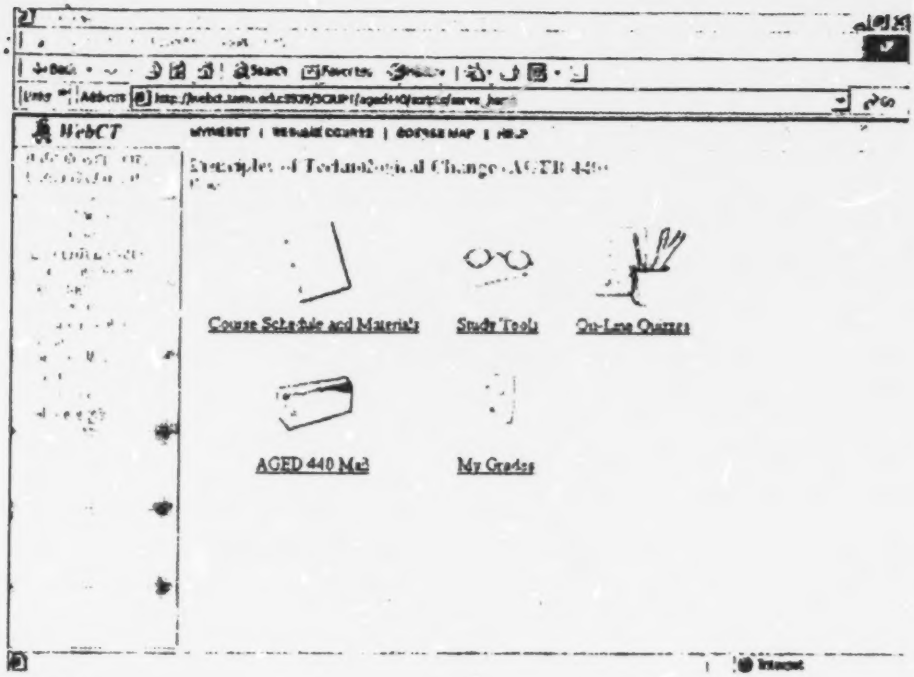

Figure 1
MYWEBCT: AGED 440: Principles of Technological Change

Objective two: Table 2 shows that seventy-six percent of the participants indicated that they purchased the course pack even though the materials were available for free through WebCT. A typical response to this question was "The reason I purchased a packet was because the packet had everything I needed in it and I did not have to worry about going to the computer lab every week and reading the material on-line." Twenty-four percent of participants did not purchase the course pack and relied solely on the online materials. One student noted "No, I did not purchase the packet. I printed all the notes off of my personal computer at home. It is easier to print at my home." Another student, however, stated "No, I didn't buy a course packet, but now I wish I would have, because it won't always print out everything. It has a lot of errors and then I don't have the stuff for class.

As shown in Figure 2, once student access course schedule and materials they can bring up and print course material (Topic) for each class. The course material is presented in Adobe® portable document format (PDF) and saved as PowerPoint handouts with three slides per page. Additional course readings were also made available as in PDF format.

Table 2
Accessing Course Material Through WebCT

	Student Response							
	Positive		Neutral		Negative		Total	
Question	f	%	f	%	f	%	f	%
Did you purchase a course packet? If so, why since all the materials are available online?	68	76	0	0	21	24	89	100

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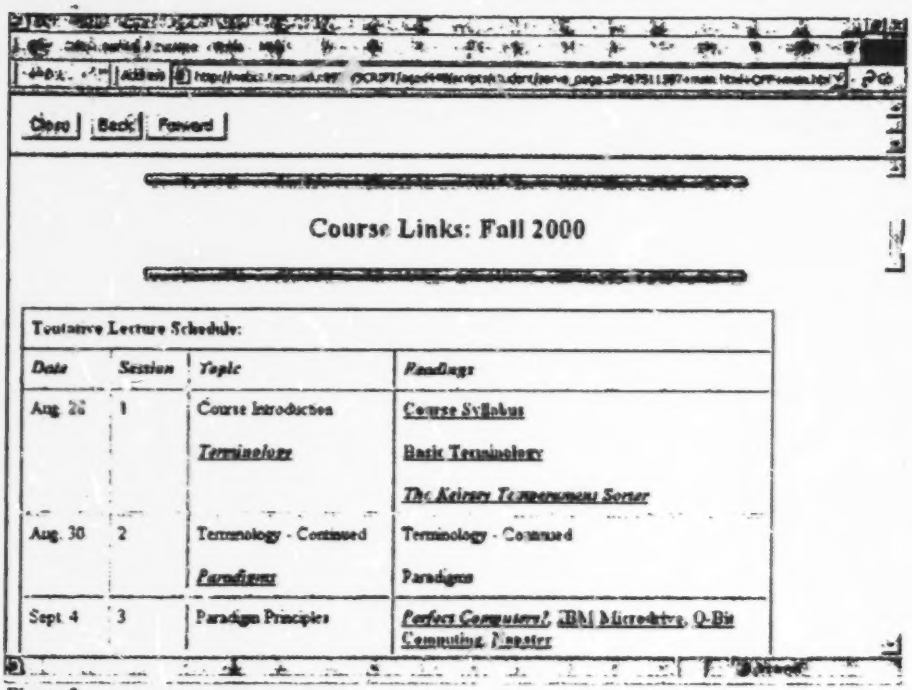

Figure 2
WebCT Course Schedule and Materials

Objective three Most students (92%) accessed and tracked their grades online using WebCT (see Table 3.) Eight percent did not access and track grades online Students (83%) had a positive response to accessing and tracking their grades online. One participant noted "Yes I do track my grades on WebCT and I really like this aspect of WebCT. I feel this in the future can lead to less work for the professors, and a quicker response on grade distribution." Twelve percent had neutral responses, and five percent had negative responses. In general students who did not access and track grades and progress online indicated doing so was a poor use of time because grades were available in lab and they had limited access to a computer. As shown in Figure 3, students can access grades and progress.

Table 3
Accessing and Tracking Grades with WebCT

	Student Response							
	Positive		Neutral		Negative		Total	
Question	f	%	f	%	f	%	f	%
Did you access and track your grades and progress in the course online?	82	92	0	0	7	8	89	100
What did you think of the process?	74	83	11	12	4	5	89	100

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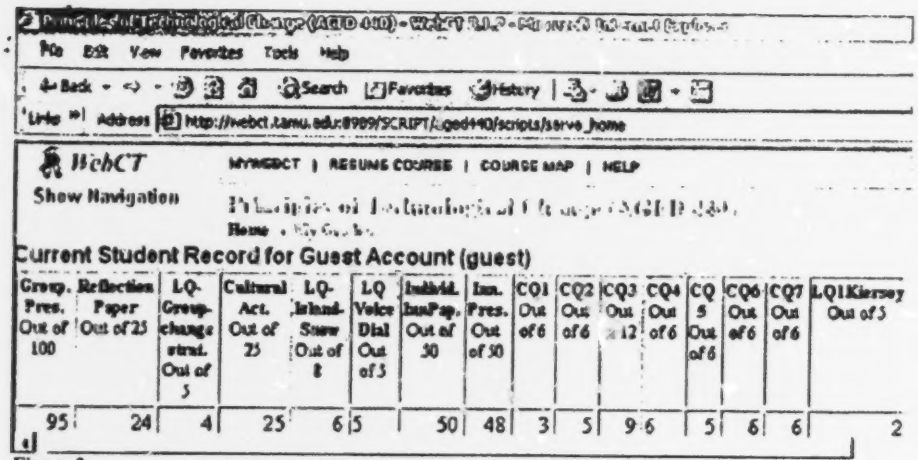
File Edit View Favorites Tools Help
Back Search Favorites History
Address http://webct.tamu.edu:8909/SCRIPT/ged440/scripts/serve_home
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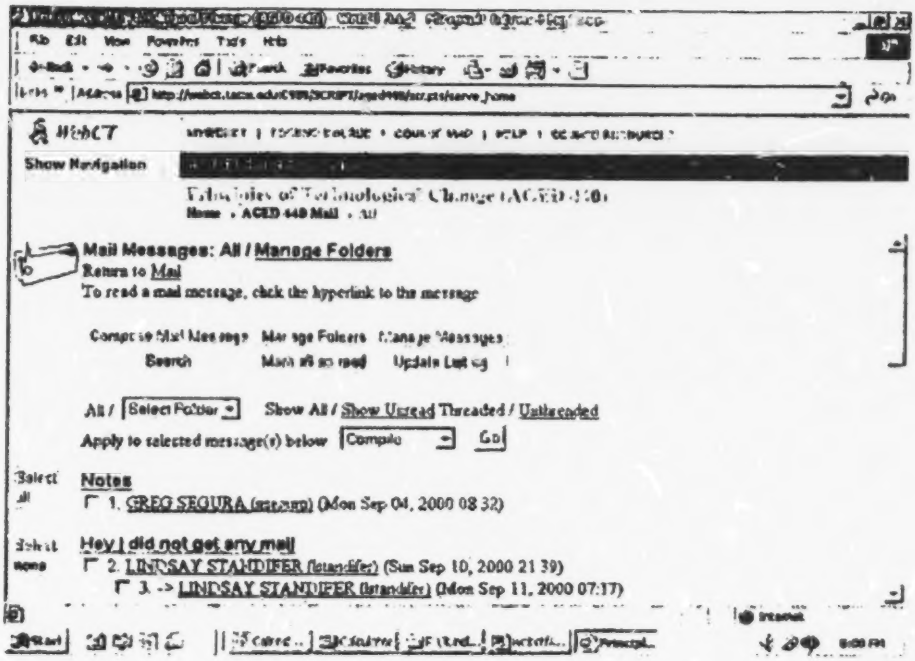
MYWEBCT | RESUME COURSE | COURSE MAP | HELP
Show Navigation
Home
Current Student Record for Guest Account (guest)
Group. Pres. Out of 100
Reflection Paper Out of 25
LQ-Group-change strat. Out of 5
Cultural Act. Out of 25
LQ-Island-Snow Out of 8
LQ Voice Dial Out of 5
Individ. InstPap. Out of 50
Ins. Pres. Out of 50
CQ1 Out of 6
CQ2 Out of 6
CQ3 Out of 12
CQ4 Out of 6
CQ 5 Out of 6
CQ6 Out of 6
CQ7 Out of 6
LQ1Kiersey Out of 5
95 24 4 25 6 5 50 48 3 5 9 6 5 6 6 2

Figure 3
Accessing and Tracking Grades

Objective four Eighty-two percent of the participants did not use WebCT to create an online learning environment between and among themselves and other students through email, threaded discussion, online testing, etc to increase their success in the course. One respondent noted "No, there are not enough users yet to develop a substantial network, however, I believe it will be utilized in this manner in the near future." Seventeen percent of the respondents used the features mentioned above to create an online learning environment. One student noted that "it helped me meet people as well as learn about people. E-mails have helped out too." One student provided a neutral response.

Table 4
Creating Online Learning Environments and WebCT

	Student Response							
	Positive		Neutral		Negative		Total	
Question	f	%	f	%	f	%	f	%
Did you use WebCT to create an online learning environment between and among yourself and other students through email, threaded discussion, online testing, study guides, etc. to increase your success in the course?	15	17	1	1	73	82	89	100


WebCT
Show Navigation
Mail Messages: All / Manage Folders
Return to Mail
To read a mail message, click the hyperlink to the message
All / Select Folder
Show All / Show Unread Threaded / Unthreaded
Apply to selected message(s) below
Go
Select all
Notes
1. GREG SEGURA (Mon Sep 04, 2000 08:32)
Select none
Hey I did not get any mail
2. LINDSAY STANDIFER (Sun Sep 10, 2000 21:39)
3. -> LINDSAY STANDIFER (Mon Sep 11, 2000 07:17)

Objective five Overall, most students (89%) had positive perceptions regarding the use of WebCT in *AGED 440: Principles of Technological Change* . One student noted, "I feel WebCT has been helpful and feel every course should use it." Eleven percent of participants had either negative or neutral perceptions regarding its use. Students who had negative or neutral overall perceptions towards WebCT indicated that difficulties logging in and using it led to frustration and ineffectiveness. Access to computers and printers, and slow data transfer rates contributed to students' negative and neutral perceptions. Several students stated that books don't crash in the middle of the night or right before a quiz.

Table 5

Student Perception and Use of WebCT

	Student Response							
	Positive		Neutral		Negative		Total	
Question	f	%	f	%	f	%	f	%
What are your overall perceptions regarding WebCT and its use in this course.	79	89	3	3	7	8	89	100

Conclusions

The following section presents conclusions and discussions of this study, based on the findings, by objective.

WebCT contributes to student success. This success, however, is hampered when students do not have easy access to reliable computers with high-speed access to the Internet. Further, teachers can enhance student success by encouraging students to take advantage of multiple WebCT functions.

Although course materials were available online, students tended to rely on traditional print material over WebCT delivered course materials. Students want to have a hard copy of course materials and very few will rely on solely on computer-based files. The cost to purchase course materials from a "copy" store is comparable to printing costs at computer labs and is less labor intensive. Teachers should not assume students are willing, able, or wish to only receive course materials online and should be willing to make materials available through a variety of means.

WebCT's function for accessing tracking grades and progress online was used more by students than any other function. Students were able to access grades anytime. Further, grades were posted immediately after scoring to WebCT. Students did not have to come wait until the next class meeting or have to campus to read grades posted on a bulletin board.

Students did not or were not able to take advantage of WebCT's function to enhance their learning by creating student centered online learning environments. To effectively and efficiently incorporate distance education technology into courses and to take advantage of the self-directed nature of students, WebCT's chat rooms, discussion boards, emails, students home pages, and so on should be exploited.

Students' overall perceptions of WebCT were positive. Students' positive response to WebCT is good news for teachers who are incorporating or wish to incorporate technology into their teaching as a means for improving teaching. Teachers, however, need to recognize and make alternative options for students not willing or unable to use WebCT. It is hoped that as WebCT and other online course tools become more commonplace, and as students become more familiar with the technology, student learning, teacher effectiveness, and course efficiencies will improve.

Educational Importance

The educational importance of this study is focused on three areas: distance education and delivery strategies, course evaluation, and student perceptions. The results of this study will help teachers understand student perceptions regarding the adoption and diffusion of WebCT in a web supported instructional environment. The methodology employed in this study demonstrates a valid and reliable method for evaluating the adoption and diffusion of informational technologies by students using the technology as a means. The results contribute to the growing body of literature related to distance education and delivery strategies.

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